

differ but little from those of a bird. Notwithstanding the massiveness of the skull, nearly every suture is persistent; in the light skull of the Bird nearly every suture is obliterated.

"The pier of the mandible explains, and is explained by, that of the Lizard on one side, and the Salamandrian below. The jaw itself is at an early period quite continuous with the hyoid arch; and that arch is for a time continuous with the auditory *columella*, as in the *Hatteria* of New Zealand; and the *columella* itself is only a modified part of that arch. In its early segmented state, however, and in its later broken-up condition, it comes very near to what is found in the mammal, and greatly helps the morphologist in working out a harmony between this arch in the Sauropsida and the Mammalia.

"In the discussion which took place a dozen years ago between Professors Peters and Huxley (for the views of the latter see P. Z. S. 1869, pp. 391-407), as to the early continuity of the mandibular and hyoid arches and their nature, both combatants were right and both were wrong. The two arches *are* continuous for a time; but that condition does not sustain Prof. Peters's *reasoning*. The deductions of Prof. Huxley, in spite of the fact that he worked with imperfect materials, will remain true for all time."

Prof. Parker's memoir will be published entire in the Society's Transactions.'

The following papers were read:—

1. On a Collection of Rodents from North Peru. By
OLDFIELD THOMAS, F.Z.S., British Museum.

[Received December 15, 1881.]

(Plate IV.)

The collection now described was obtained by M. Stolzmann, the well-known Polish collector, in Northern Peru, and has been placed in my hands for determination by Prof. Taczanowski, of the Warsaw Museum, by whom a nearly complete set has been presented to the British Museum.

Every specimen has its exact locality, date, and altitude recorded; and the habits of many of the species have been noted by M. Stolzmann, whose remarks, placed between quotation-marks, are appended to their respective species.

The localities from which the collection was obtained are as follows:—

Tumbez.—Capital of the province of the same name. Situated on the river Tumbez, at about 4 miles from its outlet in the Bay of Guayaquil (3° S. lat.).

Tambillo.—A colony on the river Malleta, a tributary of the Upper Amazons. This river forms the boundary between the pro-





vinces of Jaen and Chota. Tambillo is situated about 5700 feet above the level of the sea, upon the eastern slope of the western chain of the Cordilleras (6° S. lat.).

Cutervo.—A town in the province of Chota, department of Cajamarca, about twodays south of Tambillo, on the same slope, 9000 feet.

Callacate.—A colony, 4800 feet in altitude, about 8 miles northwest of Cutervo, on the banks of the river Chota, which runs into the Amazon under the name of Chamaya.

*Chirimoto*¹.—A colony in the valley of the Huayabamba, a tributary of the Huallaga, in the province of Chachapoyas. It is about 5400 feet above the sea, upon the eastern slope of the eastern chain of the Cordilleras (6° S. lat.).

*Huambo*¹.—A plantation in the forest of the same name, to the east of Chachapoyas and Chirimoto, 3700 feet in altitude, on the banks of the river Huambo, a tributary of the Huallaga.

All these localities, except Tumbes, are on the northward Andean extension of the Patagonian subregion, as defined by Messrs. Newton and Salvin²; so that we should naturally expect, as indeed turns out to be the case, that most of the species would be the same as those found by Mr. Louis Fraser, who collected at places situated in the Ecuadorean part of this same Andean tract. Tumbes is on the southward extension of the Subandean subregion on the Pacific side; but the specimens collected there are too few to draw any deductions from.

The chief interest of the collection centres in the fine series of *Hesperomys* contained in it; for of this difficult genus and the closely allied one *Holochilus* M. Stolzmann obtained just over 40 specimens. The value of this additional material may be perceived when it is remembered how very few of the specimens in the various museums are preserved in spirit, or have their exact localities or habits recorded.

On account, therefore, of the fact that most of the published descriptions have been taken either from stuffed specimens or skins, I have thought it useful to give the measurements of every adult specimen in this collection, even when belonging to comparatively well-known species. It must, moreover, be remembered that from such a locality as Northern Peru very few species of this group can in any sense be called well known; in fact, of the 11 species of *Hesperomys* and *Holochilus* here described, only two, *Hesperomys longicaudatus* and *olivaceus*, at all deserve this term; and even of these, additional measurements are much to be desired, as helping to show the range of variation found among the South-American Muridæ. Of the 11 species just referred to, only one belongs to *Holochilus*, the remaining ten being distributed among *Calomys*, *Rhipidomys*, and *Habrothrix*, three of the eight subgenera of *Hes-*

¹ Additional information concerning these two localities may be obtained from Prof. Taczanowski's own paper on the birds collected by Mons. Stolzmann (*antea*, p. 2).

² *Encycl. Brit.* ed. 9, iii, p. 744.

peromys now usually admitted. Of these *Calomys* claims four species, one being new; *Rhipidomys* also four, of which two are new; and *Habrothrix* the remaining two, both of which are previously-known species. There are thus three new species in the collection; and of two of the others I am somewhat doubtful of the determination; so that I think it possible that either or both of them will in the end turn out to be really different from the species to which I have provisionally referred them.

The chief previous information bearing on this subject is comprised in Tschudi's classical work on the fauna of Peru¹, and in Mr. Tomes's papers on the Mammals collected in Ecuador by Mr. Fraser².

Of the 6 Muridæ mentioned by Tschudi, only one, *Hesperomys leucodactylus*, was found by M. Stolzmann; while of the 13 brought from Ecuador by Mr. Fraser he obtained six, or just about half; so that from his well-preserved spirit-specimens I have been able to supplement the descriptions given by Mr. Tomes, many of which were drawn up only from skins.

It is perhaps well to mention that, when describing these Rats and Mice, I found it possible, owing to their excellent state of preservation, entirely to dry the hairs, so that the colour and texture of the fur, and the general appearance of the animals were just as they would have been if the specimen had been examined when recently killed. I have been unfortunately unable to supplement from this collection the notes recently published by me with regard to the comparative lengths of the different parts of the alimentary canal³, because the intestines had been removed from all the specimens before they came into my hands.

Of the new species obtained by Mons. Stolzmann, *H. spinosus*⁴ is perhaps the most interesting, as being the first *Hesperomys* that has been found with spiny fur. I have long expected that such a form would be discovered. There are so many examples of tropical species of the neighbouring genus *Mus* which possess spines in their fur, that I have always been surprised at there being no spiny members of such a large and variable tropical genus as *Hesperomys*. The present discovery of a spine-clad Vesper-mouse is therefore proportionately interesting.

As in the Old-world *Mus*⁵, so here in *Hesperomys*, I find that the number of mammæ is both very constant⁶ and very distinctive of

¹ Pp. 177-184 (1844)

² P. Z. S. 1858, p. 546; 1860, pp. 211 & 260.

³ P. Z. S. 1880, p. 696.

⁴ *Infra*, p. 105.

⁵ See P. Z. S. 1881, p. 531, &c.

⁶ The variation in the number in some of the common species of *Mus*, viz. in *M. decumanus*, *rattus*, and *alexandrinus*, has caused this character to fall into disrepute among writers on Rodentia; but, with the exception of these species, and of one or two others which have the unusually large number of from 14 to 18 mammæ, I have never, in any single instance, found a specimen of either *Mus* or *Hesperomys* in which the number differed from that normal to the species. I do not of course assert that individual variations do not occur, but only that they must be extremely rare, as I have never met with any in all the large series of specimens that I have examined with special reference to this point.

the various subgenera and species, though the value of this character seems never to have been noticed by any previous writer in connexion with the arrangement of the Sigmodont Muridæ.

The following Table gives the number of mammæ found in a few of the best-known Sigmodontes not included in the present collection:—

	Pectoral pairs of mammæ.	Inguinal.	Total mammæ.	Nr. of adult females examined.
<i>Ochetodon mexicanus</i> , <i>De Sauss.</i> ...	1	2	6	1
<i>Hesperomys</i> (<i>Rhipidomys</i>) <i>sumi-</i> <i>ehrastris</i> , <i>De Sauss.</i>	0	2	4	8
<i>H.</i> (<i>Vesperimus</i>) <i>leucopus</i> , <i>Raf.</i> ...	1	2	6	6
<i>H.</i> (<i>V.</i>) <i>michiganensis</i> , <i>Aud. & Bach.</i>	1	2	6	1
<i>H.</i> (<i>Oryzomys</i>) <i>couesi</i> , <i>Alst.</i>	2	2	8	2
<i>H.</i> (<i>Calomys</i>) <i>bimaculatus</i> , <i>Waterh.</i>	2	2	8	1 (type)
<i>Sigmodon hispidus</i> , <i>Say & Ord</i> ...	3	2	10	7

We thus see that the number of mammæ gives us an additional character by which to separate Dr. Coues's subgenus "*Vesperimus*" from *Calomys*, the first having only 3, while the latter has 4 pairs. *Sigmodon* also, on whose generic distinction Dr. Coues has cast some doubt¹, is, so far as its mammæ are concerned, very distinct from any of the other New-world Muridæ in having no less than 5 pairs, the largest number found in this group.

1. LEPUS BRASILIENSIS, L.

a (juv.). Cntervo, 9000', Feb. or Mar. 1879.

2. ECHINOMYS SEMISPINOSUS, Tomes, P. Z. S. 1860, p. 265.

a. ♂ (imm.), Tumbez, sea-level, June 1876.

"In the reeds (*Canna brava*) on the banks of the river."

[MUS MUSCULUS, L.

a. Callacate, 4800', April 1879.

This specimen had a large *Æstrus*-larva in the flesh just above the root of the tail (See C. O. Waterhouse, Proc. Ent. Soc. 1881, p. xxii).]

3. HOLOCHILUS (NECTOMYS) APICALIS, Peters, Abhandl. Akad. Berl. 1860, p. 152.

Hesp. cephalotes, Desm., Tomes, P. Z. S. 1858, p. 548 (nec Desm.).

a. Chirimoto, 5400', Jan. 1880.

b. Huambo, 3700', April or May 1880.

c, d (juv.). Tambillo, 5800', Feb. 1878.

Dimensions, in inches:—

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
<i>a</i> . ♂ ..	7·5	9·0	1·96	1·96	·68	1·58
<i>b</i> . ♂ ..	8·4	10·1	2·05	2·15	·65	1·77

In the paper quoted above, Prof. Peters described a large Guaya-

¹ Mon. N. Am. Rod. p. 32, 1877.

quail Rat as *Nectomys apicalis*, g. and sp. n., the genus being founded on the presence of short webs to the toes, including *H. squamipes*, Bts., from which *N. apicalis* was separated on account of its only having 5 instead of 6 hind-foot pads. I do not, however, think that the presence of webs to the feet is a character of generic importance, and should prefer to regard *Nectomys* as only a subgenus of *Holochilus*. The specific distinction of *H. apicalis* is, no doubt, quite correct, as all the specimens in the present collection agree in having only 5 hind-foot pads. None of them have, however, the white tip to the tail described by Prof. Peters; but this is no doubt a point in which there may be considerable variation. The incisors of *H. apicalis* were originally said to be snow-white; but the present specimens do not agree with this, their incisors being pale yellow; but they are certainly very much lighter-coloured than in *H. squamipes*, where they are a rich orange. Notwithstanding these differences, I do not think there can be any doubt that these specimens belong to Prof. Peters's species, as they agree perfectly in size, locality, and the very important character of the number of the foot-pads.

There is in the British Museum another specimen of this species, collected by Mr. J. K. Salmon at Concordia, Medellin, U. S. of Colombia.

(a) "Appeared to be aquatic, although caught in a cultivated field."

(b) "Killed in an arm of the river just as it was seizing a branch of a Guava-tree, which touched the surface of the water. It had in its stomach an aromatic mass composed of fruity substance. It swims perfectly, only coming out late in the evening, and is probably the animal which gnaws the fish taken in the Indians' nets. It is not possible to catch it in a rat-trap."

4. *HESPEROMYS (CALOMYS) LATICEPS*, Lund, Blik p. Bras. Dyrev. iii. p. 279 (1841).

a-c. Huambo, 3700', April and May 1880.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
a. ♂ ..	5.0	6.3	1.35	1.44	.70	1.14

To this species I refer three specimens, of which, however, only one is adult. The tarsus seems to be somewhat longer than in the original specimens; but otherwise it agrees very fairly with a specimen of *H. laticeps* in the Museum collection from the original locality, Bahia. This Bahian specimen, however, is only a skin; and it is therefore quite possible that spirit-specimens would show such differences from the Peruvian one, that, combined with the greater length of the tarsus and the difference in locality, a new species would have to be formed for the latter.

The following is a description of the adult individual, a male:—

Fur rather short and close, compared with that of *H. albigularis* or *leucodactylus*. General colour above dull brown, very finely

grizzled with dark greyish yellow. Belly white, the basal halves of the hairs, however, both above and below, dark slate-colour. The back- and belly-colours rather sharply separated. Feet greyish white. Tail brown above and white below, the latter colour, however, gradually becoming darker, so that the distal half of the tail is nearly uniform. Foot-pads prominent; soles naked, proximal halves quite smooth, distal halves coarsely granulated. Fifth hind toes, without claws, only reaching just to the end of the fourth metatarsals. Ears with a projection on the anterior border¹. Skull with well-marked supraorbital ridges.

"These Rats created great havoc among the stores of maize under the roof of the house. After a time they multiplied to such an extent that I caught 14 in one night. This species also did considerable damage in the plantations of cocoa, gnawing holes in the skins of the fruit, and eating the contents."

5. *HESPEROMYS (CALOMYS) ALBIGULARIS*, Tomes, P. Z. S. 1860, p. 264.

a. Cutervo, 9200', Feb. or Mar. 1879.

b-f. Tambillo, 5800', Feb. 1878.

g. Callacate, 4800', Apr. 1879.

h. Huambo, 3700', Apr. and May 1880.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
<i>a.</i> ♂ ..	5.0	6.2	1.24	1.48	.69	1.25
<i>b.</i> ♂ ..	5.1	6.6	1.3	1.56	.70	1.28
<i>c.</i> ♀ ..	4.9	6.5	1.24	1.46	.72	1.24

To this species I refer eight of the specimens, from various localities. As Mr. Tomes's account was drawn up from skins, the following description may be useful:—

Fur long, soft and fine, with a few longer black hairs intermixed. General colour above deep rufous, becoming clearer on the sides, and passing gradually into pale rufous on the belly. Basal two thirds of the hairs dark slate-colour all over the body, except that in some of the specimens there is a pure white blotch just between the fore legs, a peculiarity which suggested Mr. Tomes's name for the species. Anterior half of the outer and posterior half of the inner sides of the ears thinly covered with black hairs, the remainder nearly naked. Feet white, with the exception of the metacarpals and metatarsals, on which there are a few brown hairs intermixed. Tail very long and slender, above brown and beneath white for its whole length, the two colours rather sharply separated. Anterior border of ears without any projection. Mammary 8, two pectoral and two inguinal pairs. Soles naked, foot-pads large and prominent, fifth hind toes, without claws, reaching to the middle of the first phalanx of the fourth toes.

It will be seen that the above description does not quite agree with that of Mr. Tomes; but I do not think that the differences are of

¹ See P. Z. S. 1881, p. 4.

sufficient importance to justify me in describing our specimens as new without seeing Mr. Tomes's type.

This species, as represented by the specimens before me, is very like the European *Mus sylvaticus*, L., in general appearance, though it is considerably larger. Its nearest ally seems to be *H. longicaudatus*, Benn., which, however, differs from it by its much smaller size and by its quite uniform brown or black tail. As all the eight specimens of *H. albigularis* in the collection possess the same bicolor tail, it would seem to show that it is as constant a character among the New-world *Hesperomys* as I have found it to be among the true Old-world *Mures*. *H. vulpinoides*, Schinz¹, a species of about the same size, has a quite unicolor tail. This latter, moreover, comes from the eastern side of S. America, the types having been collected in the province of Minas Geraes.

6. HESPEROMYS (CALOMYS) LONGICAUDATUS, Benn.

a-f. Huambo, 3700', April and May 1880.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
<i>a.</i> ♀ ..	3.25	5.0	.89	.95	.45	.79
<i>b.</i> ♀ ..	3.25	5.4	.90	.98	.50	.84
<i>c.</i> ♀ ..	3.30	5.4	.90	.98	.55	.85
<i>d.</i> ♀ ..	2.90	4.8	.89	—	.52	.78

This species seems to be the common Mouse of the whole of central S. America, as the Museum series contains specimens from Ecuador, Peru, Bolivia, Chili, Buenos Ayres, Paraguay, Minas Geraes, and Bahia, thus covering an extremely extended range.

The following is its synonymy, as far I have been able to make it out with any certainty :—

Mus longicaudatus, Benn. P. Z. S. 1832, p. 2.

Mus (Calomys) flavescens, Waterh. P. Z. S. 1837, p. 19 ; Voy. Beagle, i. Mamm. p. 46, pl. 13 (1839).

Mus longicaudus, Lund, Blik p. Bras. Dyrev. iii. p. 279 (1841).

Hesperomys eliurus, Wagn. Archiv f. Naturg. 1845, i. p. 147 ; Abhandl. Akad. Münch. v. p. 307 (1850).

It is, however, just possible that *Mus longitarsus*, Rengg.², may refer to this species, in which case Mr. Bennett's name would have to sink into a synonym, as Rengger's work was published in 1830, two years before *M. longicaudatus* was described.

Prof. Burmeister in his recent work on the Mammals of the Argentine Republic³, places *M. longitarsus* as a synonym of *H. longicaudatus*, apparently not noticing that, if they are the same, the former name must stand as that of the species. However, the type of *M. longitarsus*, though young, is said by Rengger to have a hind

¹ Schinz, Syn. Mamm. ii. p. 193 (1844). *H. vulpinus*, Lund, nec Licht.

² Säug. Parag. pp. 231, 232 (1830).

³ Page 221, 1879.

foot no less than 14 lines in length, while the very largest specimen in our considerable series of this species has a hind foot barely 1 inch long. I am therefore inclined for the present to continue to use Bennett's well-known name, believing that *H. longitarsus* may be found to be only the young form of some larger species.

7. *HESPEROMYS (CALOMYS) SPINOSUS*, sp. n.

a, b. Huambo, 3700', April and May 1880.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
<i>a. ♂</i> ..	3.0 ¹	3.85	.87	.95	.50	.78
<i>b. ♂</i> ..	3.0	3.95	.87	.94	.46	.75

	Total length	Greatest breadth.	Molar series.	Back of incisors to 1st molars.	Breadth of con- striction between orbits.	Lower jaw (bone only).
Skull of <i>a.</i> ..	.91	.51	.13	.22	.19	.50

Fur of medium length, composed of flattened spines intermixed with fine hairs, the spines predominating on the back but becoming rather fewer on the sides and disappearing on the belly. General colour above dark grizzled rufous and black, the spines slate-coloured, with black tips, the hairs also slate-coloured for the greater part of their length, but their tips rich orange. Sides becoming paler towards the belly, where the tips of the hairs in one specimen are white, and in the other pale fulvous, the bases of the hairs, however, being, as usual, slate. Head like back, but with fewer spines. Ears thinly covered with short black hairs. Tail at its base dark brown above and white below; but the two colours soon merge into uniform blackish brown; the scales proportionally very large. Tail-hairs very scanty, except at the tip, where they form a slight and inconspicuous pencil. Fore feet dark brown, the toes slightly paler. Hind feet and toes pale greyish white, not sharply separated from the colour of the legs, with a brown patch on the distal part of the metatarsus. Foot-pads small but prominent, soles smooth on proximal and granulated on distal halves. Fifth hind toes, without claws, reaching barely to the middle of the first phalanx of the fourth toes. Ears with a well-marked projection on their anterior edge. Both the specimens being males, I cannot record the number of mammae; but the other characters being so similar to those of ordinary *Calomys*, it is unlikely that there would be any other number but 8.

Skull on the whole similar to that of other small *Calomyes*, but with the supraorbital ridges sharper and more strongly developed than in any others that I have seen, and the space between the orbits broader than usual.

The discovery of this Mouse, as spiny as an average *Heteromys*, is, as mentioned above, of great interest; for hitherto no spiny *Hespero-*

¹ Taken before the skull was extracted.

mys has been recorded¹, notwithstanding the tropical climate of central and northern South America and the innumerable forms into which the Vesper-mice have been developed.

Among the Old-World Muridæ instances of the development of spines are extremely numerous, though their presence would seem often to be variable, the spines being apparently shed and renewed according to the season of year². In the case of this Peruvian Vesper-mouse, however, it is scarcely likely that there could be any shedding of spines according to season, since at Huambo, only 6 degrees south of the equator, there can be but very little appreciable change of season at all. Moreover, as far as regards the distinctness of this species, there appears to be no *Calomys* as yet described with the colours and proportions of *H. spinosus*, even if we ignore the presence of the spines as a specific character.

8. *HESPEROMYS* (*RHIPIDOMYS*) *LEUCODACTYLUS*, Tschudi, Fauna Peruana, p. 183, Taf. xiii. fig. 2 (1844).

H. latimanus, Tomes, P.Z.S. 1860, p. 213.

a. Huambo, 3700', April or May 1880.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
a. ♀ ..	4.85	6.5	1.1	1.4	.5	1.17

The single specimen of this species is rather paler-coloured than Tschudi's type, which I have examined in the Berlin Museum; it is otherwise, however, quite identical, all the more important characters agreeing exactly. The following is a short description of Mons. Stolzmann's specimen:—

Fur soft and close. General color above pale brownish grey, below white. Dark colour of the back continued down to the metacarpals and metatarsals; toes white. Ears without a projection on their anterior edge. Tail quite unicolor, dark brown, with the hairs increasing in length to its tip, where they form a distinct pencil. Feet remarkably short and broad, sole-pads very large, round and smooth. Fifth hind toes reaching to the middle of the second phalanx of the fourth toes. Whiskers very numerous, black. Mammæ six, one pectoral and two inguinal pairs.

"Several individuals of this species were caught on the palmwood roof of the house in which I was living. They gnawed to pieces all leather articles, such as saddles and bridles, and used the fragments to build their nests with. One of these, made of paper torn from a book, was built in the folds of a mosquito-net."

¹ Lund (Blik p. Bras. Dyrev. iii, p. 277, 1841) described a *Mus setosus* from Minas Geraes as having spines in the fur; but this is now generally admitted to have been founded on a specimen of *Mus alexandrinus*, Geoff., an introduced species which seems to be very common in Brazil.

² Cf. P. Z. S. 1881, p. 540.

9. *HESPEROMYS* (*RHIPIDOMYS*) *PYRRHORHINUS*, Pr. Max. Abbildungen, Taf. 27 (1822-26); Beitr. ii. p. 422 (1826).

Mus mystacalis, Lund, Blik p. Bras. Dyrev. iii. p. 279 (1841).

*H. leucodactylus*¹, Natt., Wagn. Wieg. Archiv, xi. 1, p. 147 (nec Tschudi) (1845); Münch. Abhandl. v. p. 310 (1850).

H. macrurus, Gerv. Casteln. Amér. du Sud, Mamm. p. 3, pl. 16. fig. 1 (1855).

a, b. Tambillo, 5800', February 1878.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
a. ♀..	5·3	7·7	1·2	1·55	71	1·3
b. ♀..	4·9	6·8	1·13	1·4	70	1·19

The following is a description of the two specimens in the collection:—

Fur long and very soft, not mixed with longer harsher hairs. General colour above rich rufous, quite hiding the dark slate-coloured bases of the hairs. Head similar but paler. Belly-hairs half slate-colour, half pure white. Ears covered with short black hairs. Whiskers black. Fore feet with the metacarpals brown and the digits white. Hind feet with the metatarsals pale orange-coloured and the digits brown. Tail very long, the basal half inch covered with the red-tipped body-hairs, the remainder uniformly dark brown above and below, the hairs, which are black, forming rather less of a pencil than usual. Ears without a projection on the anterior edge. Feet rather long for the subgenus, though shorter than in ordinary *Hesperomyes*. Foot-pads large, smooth and rounded. Fifth hind toes as in *H. leucodactylus*. Mammaræ 6, one pectoral, and two inguinal pairs. Incisors both above and below orange-coloured, broader than in other *Rhipidomyes*.

It will be seen that there are certain discrepancies between the above and the original description. The true *H. pyrrhorhinus* is said to have a reddish-yellow back and a pure white belly, as also has a specimen from Bahia, probably the type, of *H. macrurus*, Gerv., in the British Museum. The original specimens of *H. pyrrhorhinus*, moreover, were also obtained in Bahia, on the eastern side of South America. However, without knowing more of the forms inhabiting the intermediate country, I do not care to describe M. Stolzmann's specimens as new.

"Lives in trees."

These last two species belong to a very distinct subgenus. Its chief characters may be thus expressed:—Form Dormouse-like. Tail long, with the hairs generally forming a pencil at the tip. Feet short and broad; the foot-pads large, smooth and rounded, but not standing up much above the sole, evidently adapted for climbing.

¹ Burmeister (Republ. Argent. p. 223) refers this name to *H. angouya*, Desm.; but, judging from Wagner's descriptions, I think there can be no doubt that it is the present species. He distinctly refers to the pencil of longer hairs at the tip of the tail, which is quite absent in *H. angouya*.

Mammæ 4 or 6. Skull with more or less well-marked supraorbital ridges.

The most peculiar member of the subgenus is *H. sumichrasti*, De Sauss.¹, upon which both that author's *Nyctomys* and Tomes's *Myoxomys*² were founded³. These names must, however, both stand as synonyms of *Rhipidomys*, Tschudi, *H. leucodactylus* certainly belonging to the same subgenus as *H. sumichrasti*⁴. It is true that whereas the ordinary S. American *Rhipidomyes* are distinguished from true *Hesperomys* by having only 6 mammæ, *H. sumichrasti* outdoes them all in this respect by having only 4⁵, and in other ways is the most markedly specialized of them all; but nevertheless the difference is only in degree, and not in kind, so that I think we are justified in amalgamating *Nyctomys* with *Rhipidomys* as but one subgenus.

There are, however, in addition to the well-marked species already referred to, three at least which, while they possess in different degrees some of the essential characters of *Rhipidomys*, yet are more or less intermediate between the true *Hesperomys* and the most typical members of this subgenus. The first of these is *H. bicolor*, Tomes⁶, the position of which, however, I cannot properly determine, not having seen a specimen. The other two are those next following, both new to science, of which *H. taczanowskii* would seem to be most nearly allied to *Rhipidomys*, notwithstanding its rounded supraorbital margin and untufted tail, and *H. cinereus* the least, having, in addition to these two last-mentioned characters, feet proportionally longer, with less *Rhipidomyine* foot-pads, and a more or less bicolor tail. Notwithstanding these differences, however, I prefer for the present to call these both *Rhipidomys*, as they have only three pairs of mammæ, a number characteristic of the ordinary members of that group.

10. *H. (RHIPIDOMYS) CINEREUS*, sp. n. (Plate IV.)

a. Cutervo, 9200', February or March 1879.

	Head and body ⁷ .	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
<i>a.</i> ♀ . .	4.75	5.0	1.14	1.38	.64	1.18

Skull-dimensions.

	Total length.	Greatest breadth.	Molar series.	Back of incisors to 1st molar.	Breadth of con- striction between orbits.	Lower jaw (bone only).
<i>a.</i> . .	1.3	.73	.22	.37	.19	.78

¹ Rev. et Mag. Zool. 1860, p. 107.

² P. Z. S. 1861, p. 284.

³ See Alston, Biol. Cent.-Am., Mamm. p. 143, 1880.

⁴ Mr. Tomes himself, when first describing *Myoxomys*, placed in it, besides *H. sumichrasti* (its type and most typical species), *H. latimanus*, Tomes (= *H. leucodactylus*), and *H. bicolor*, Tomes.

⁵ See above, p. 101.

⁶ P. Z. S. 1860, p. 117.

⁷ These measurements were taken before the skull was extracted.

Fur extremely long and soft, only exceeded in this respect by *H. longipilis*, Waterh. General colour above grizzled ashy grey, the hairs being, as usual, slate-coloured for five sixths of their length, and the tips white, with numerous wholly black longer hairs intermixed. This colour lightens gradually into the greyish white of the belly, where the basal two thirds only of the hairs are slate-colour. Anterior edge of the outer side of the ears thickly clothed with long and soft dark brown hairs, as also is the posterior half of the internal surface, though there the hairs are much shorter. Tail unusually thick, tapering to a point, brown above and white beneath, the two colours not sharply separated, closely covered with short shining hairs from root to tip, nearly hiding the scales; there is, however, no terminal pencil of longer hairs. Upper surfaces of feet covered with pure white shining hairs, much longer than usual, those at the tips of the toes quite hiding the claws. Foot-pads large and prominent. Fifth hind toes reaching to the middle of the second phalanx of the fourth toes. Mammaræ 6, one pectoral and two inguinal pairs. Ears without a projection on their anterior edge. Incisors rich orange; upper margins of orbits without any trace of ridges.

This very peculiar-looking Rat may be readily distinguished from all its allies by its very long soft fur, its thick and tapering tail, and by the unusual hairiness of both ears, feet, and tail, the result, no doubt, of the extreme height at which it was obtained.

I can find no species with which it could by any means be confused. *H. galapagoensis*, Waterh., bears a superficial resemblance to it, but differs by several of the more important characters, having 8 mammaræ, naked extremities, and a well-marked projection on the anterior edge of the ear.

The next species seems to be really the most nearly related to it, though its general appearance is quite different.

As there is only a single specimen of this species in the collection, Prof. Taczanowski has been unable to let the British Museum have an example. I have therefore had the species figured (Plate IV.), so as to make it more readily recognizable by those unable to examine the type in the Warsaw Museum.

11. HESPEROMYS (RHIPIDOMYS) TACZANOWSKII, sp. n.

a, *♂*. Tambillo, 5800', February 1878.

(?) *c* (imm.). Cutervo, 9200', Feb. or March 1879.

	Head and body.	Tail.	Hind foot.	Forearm and hand.	Ear-conch, length.	Muzzle to ear.
<i>a</i> . ♀	3.55	5.3	.88	1.11	.45	.97
<i>b</i> . ♂ (imm.)	3.0	4.9	.87	1.04	.50	.87

Fur of medium length, soft and woolly; general colour above greyish yellow, the hairs being tipped with rufous yellow, with very few longer darker hairs. Head greyer and less yellow. Belly, as usual, greyish white, the separation of the upper and under colours quite gradual. Ears thinly clothed with brown hairs. Tail pale brown